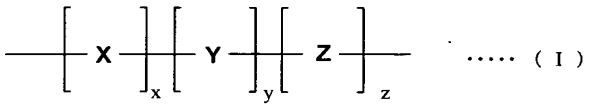
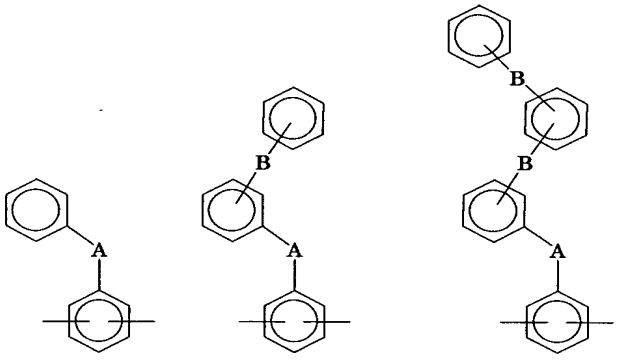
What is claimed is:

1. A polymer electrolyte comprising a sulfonated product of a polymer shown by the following general formula (I):



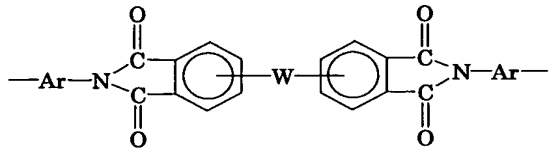
..... (I)

wherein X represents at least one structure selected from structures shown by the following formulas (X-1), (X-2), and (X-3), Y represents at least one structure selected from structures shown by the following formulas (Y-1) to (Y-12), Z represents at least one structure selected from structures shown by the following formulas (Z-1) and (Z-2), X, Y, and Z being bonded randomly, alternately, or in blocks, y represents an integer of two or more, and each of x and z represents an integer of zero or more, where $x + z > 2$,

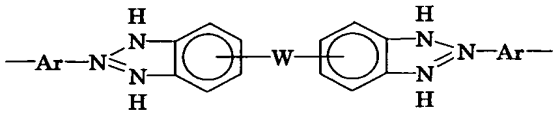


(X-1) (X-2) (X-3)

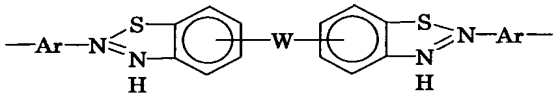
wherein A represents an electron-withdrawing group, and B represents an electron-donating group,



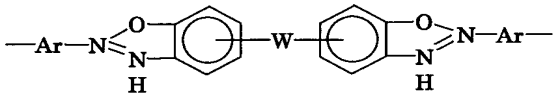
(Y-1)



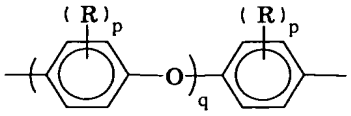
(Y-2)



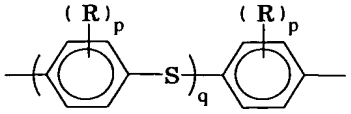
(Y-3)



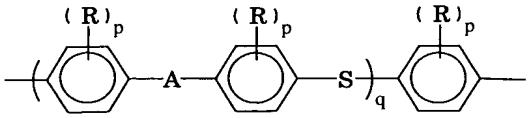
(Y-4)



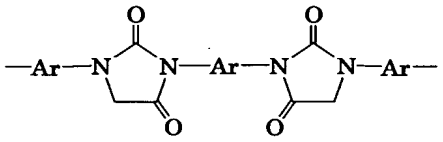
(Y-5)



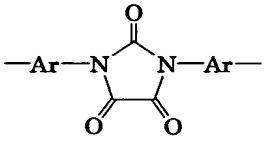
(Y-6)



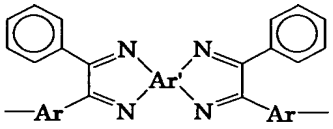
(Y-7)



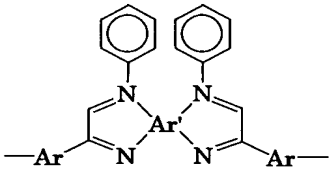
(Y-8)



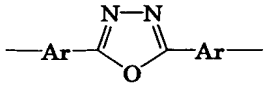
(Y-9)



(Y-10)

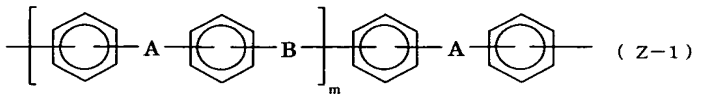


(Y-11)



(Y-12)

wherein A represents an electron-withdrawing group, Ar represents a divalent group including an aromatic ring, Ar' represents a tetravalent group including an aromatic ring, R represents a hydrogen atom or a hydrocarbon group, W represents an electron-withdrawing group or an electron-donating group, p represents an integer of 0 to 4, and q represents an integer of 1 to 1000,

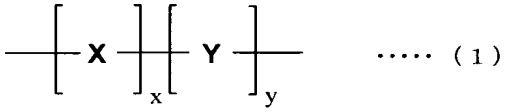


(Z-1)

(Z-2)

wherein A represents an electron-withdrawing group, B represents an electron-donating group, and m represents an integer of 0 to 200.

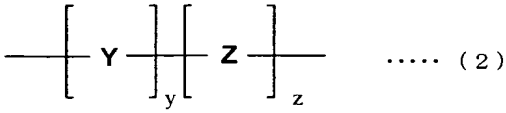
2. The polymer electrolyte as defined in claim 1, comprising a sulfonated product of a polymer shown by the following general formula (1):



..... (1)

wherein X represents at least one structure selected from the structures shown by the formulas (X-1), (X-2), and (X-3), Y represents at least one structure selected from the structures shown by the formulas (Y-1) to (Y-12), X and Y being bonded randomly, alternately, or in blocks, and each of x and y represents an integer of two or more.

3. The polymer electrolyte as defined in claim 1, comprising a sulfonated product of a polymer shown by the following general formula (2):

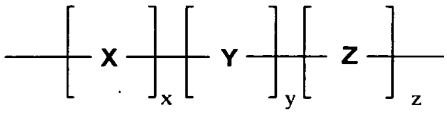


..... (2)

wherein X represents at least one structure selected from the structures shown by the formulas (Y-1) to (Y-12), Z represents at least one structure selected from the structures

shown by the formulas (Z-1) and (Z-2), Y and Z being bonded randomly, alternately, or in blocks, and each of y and z represents an integer of two or more.

4. The polymer electrolyte as defined in claim 1, comprising a sulfonated product of a polymer shown by the following general formula (3):



..... (3)

wherein X represents at least one structure selected from the structures shown by the formulas (X-1), (X-2), and (X-3), Y represents at least one structure selected from the structures shown by the formulas (Y-1) to (Y-12), Z represents at least one structure selected from the structures shown by the formulas (Z-1) and (Z-2), X, Y, and Z being bonded randomly, alternately, or in blocks, and each of x, y, and z represents an integer of two or more.

5. The polymer electrolyte as defined in claim 1, comprising a sulfonic acid group in an amount of 0.5 to 3.0 meq/g.

6. The polymer electrolyte as defined in claim 2, comprising a sulfonic acid group in an amount of 0.5 to 3.0 meq/g.

7. The polymer electrolyte as defined in claim 3, comprising a sulfonic acid group in an amount of 0.5 to 3.0 meq/g.

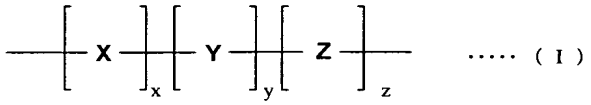
8. The polymer electrolyte as defined in claim 4, comprising a sulfonic acid group in an amount of 0.5 to 3.0 meq/g.

9. A proton-conducting membrane comprising the polymer electrolyte as defined in claim 1.

10. A proton-conducting membrane comprising the polymer electrolyte as defined in claim 5.

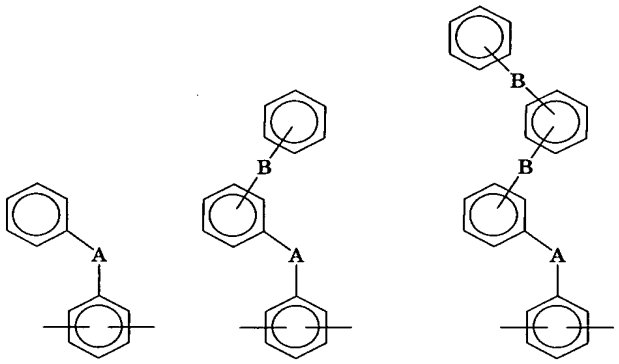
11. A membrane electrode assembly comprising a pair of electrodes and an electrolyte membrane held between the electrodes, the electrodes and the electrolyte membrane being integrally bonded,

wherein the electrolyte membrane comprises a polymer shown by the following general formula (I):



..... (I)

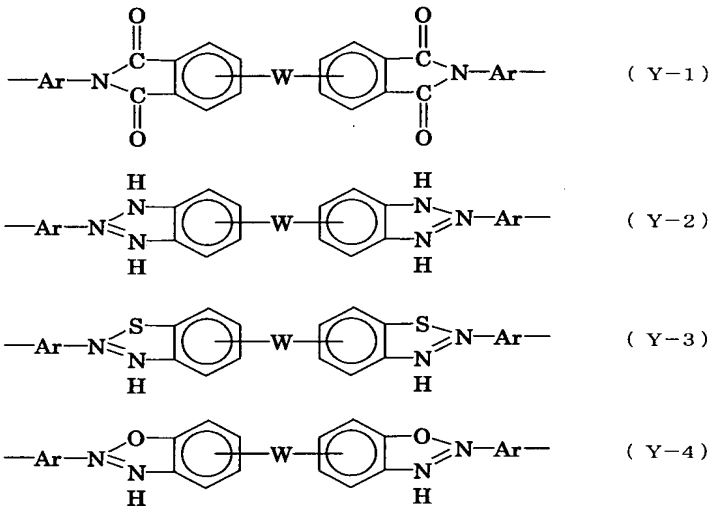
wherein X represents at least one structure selected from structures shown by the following formulas (X-1), (X-2), and (X-3), Y represents at least one structure selected from structures shown by the following formulas (Y-1) to (Y-12), Z represents at least one structure selected from structures shown by the following formulas (Z-1) and (Z-2), X, Y, and Z being bonded randomly, alternately, or in blocks, y represents an integer of two or more, and each of x and z represents an integer of zero or more, where $x + z > 2$,



(X－1)　　(X－2)　　(X－3)

wherein A represents an electron-withdrawing group, and B represents an electron-donating group,

5

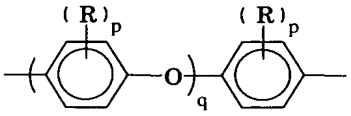


(Y－1)

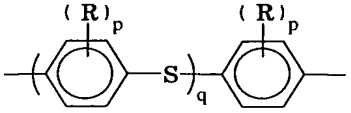
(Y－2)

(Y－3)

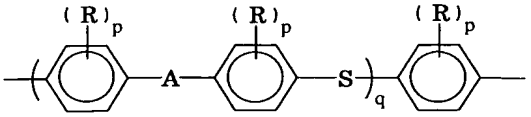
(Y－4)



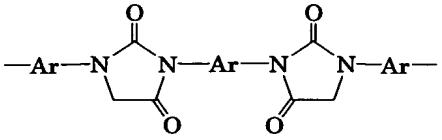
(Y−5)



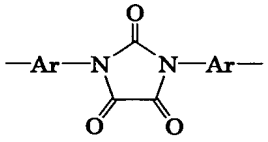
(Y−6)



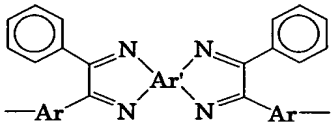
(Y−7)



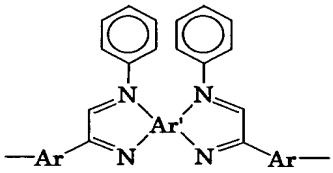
(Y−8)



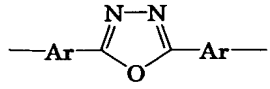
(Y−9)



(Y−10)

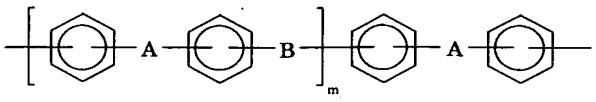


(Y−11)



(Y−12)

wherein A represents an electron-withdrawing group, Ar represents a divalent group including an aromatic ring, Ar' represents a tetravalent group including an aromatic ring, R represents a hydrogen atom or a hydrocarbon group, W represents an electron-withdrawing group or an electron-donating group, p represents an integer of 0 to 4, and q represents an integer of 1 to 1000,



(Z-1)


(Z-2)

wherein A represents an electron-withdrawing group, B represents an electron-donating group, and m represents an integer of 0 to 200.